Research for Sustainable Agriculture

- Linking Knowledge with Action for Sustainable Development -

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Contextual Approach

- Case study
  - Global Issues
  - Strategic linkages to new paradigm and approaches for sustainable agriculture and development
- Lessons and future direction

Case Study

- Integrated Rural Development Programme (IRDP)
  - Large, donor-funded
  - 9 programme areas in 6 Southern African countries
  - Economic and social development over a 10-year
    - Integrated approach
    - Regional structures for implementation
  - Multi-partner, multidisciplinary, multidimensional

Complex Objectives

Social Capital
Better community governance structures

Economic Capital
An economic driver within the community (diversified new businesses)

Human Capital
A skills building process or institution (vocational programme, primary heath care education)

What is the Reality?

- Africa's human population growing at an average rate of 2.7% over the past 20 years
  - Reached 796 million in 2000, currently estimated at 832 million
  - Projected to increase to 1.2 billion by 2015
  - Urban population has been growing at an even higher average rate of 4.2% over the last 20 years and it is estimated that by 2015 about 490 million people (approximately 45% of the total population) will live in cities and large towns
  - This growing urbanization will further amplify the growth in demand for food

Global Issues

- Poverty and hunger (MDG 1)
- Health (MDG 4, 5, 6)
- Climate change (MDG 7)
- Energy (MDG 7)
- Deforestation and land degradation (MDG 7)
- Urbanisation (MDG 1, 7)
- Water (MDG 7)

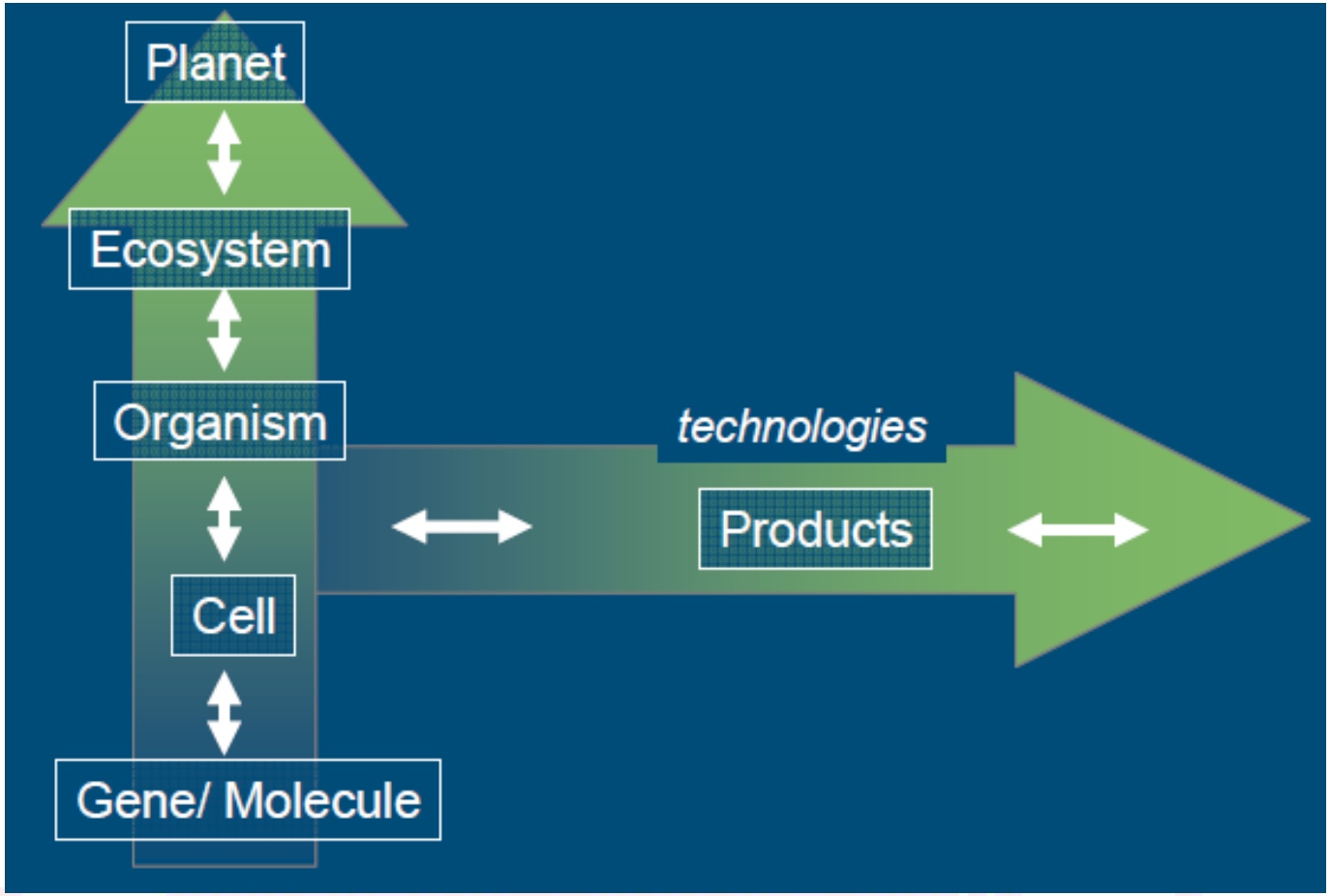
Changing position of agriculture (last century)

- Increase in productivity
- Development from craft into industry
- Chain organisation
- Globalisation
- Multiple goals
- Food and feed for health and lifestyle
- From a linear knowledge model to a participatory model

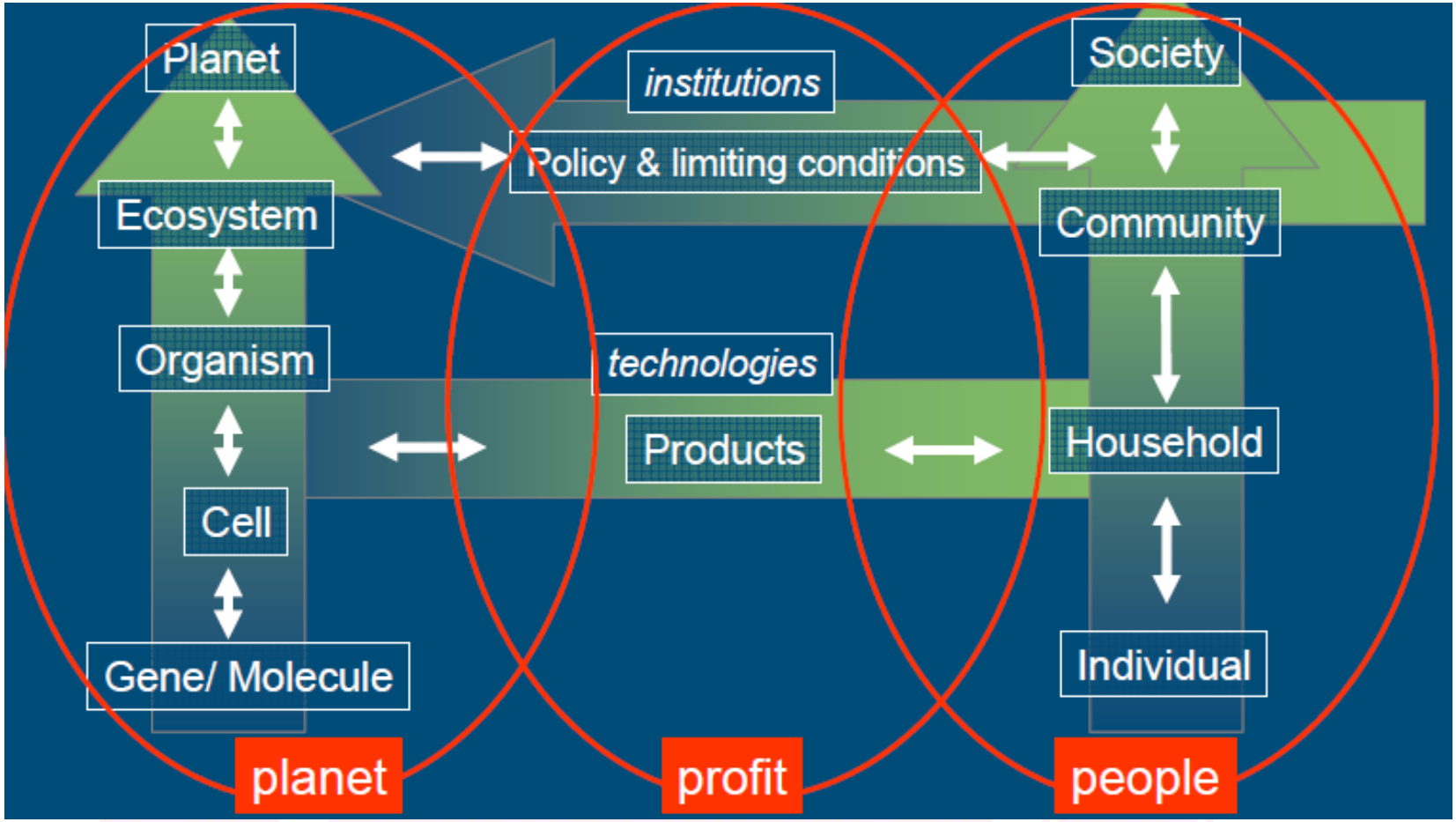
Agricultural Development

- In the 90s there was a decline by both international donors and developing countries devoted to agriculture
  - i.e. late 70s: ODA devoted to agriculture approx. 15%, declining to 2.5% in 2000
  - Proportion still only 4% by 2004
- Expectation that international community and developing countries will make the necessary increase
  - Response to the 2008 World Development Report: "*Agriculture for Development*"
  - current global food crises

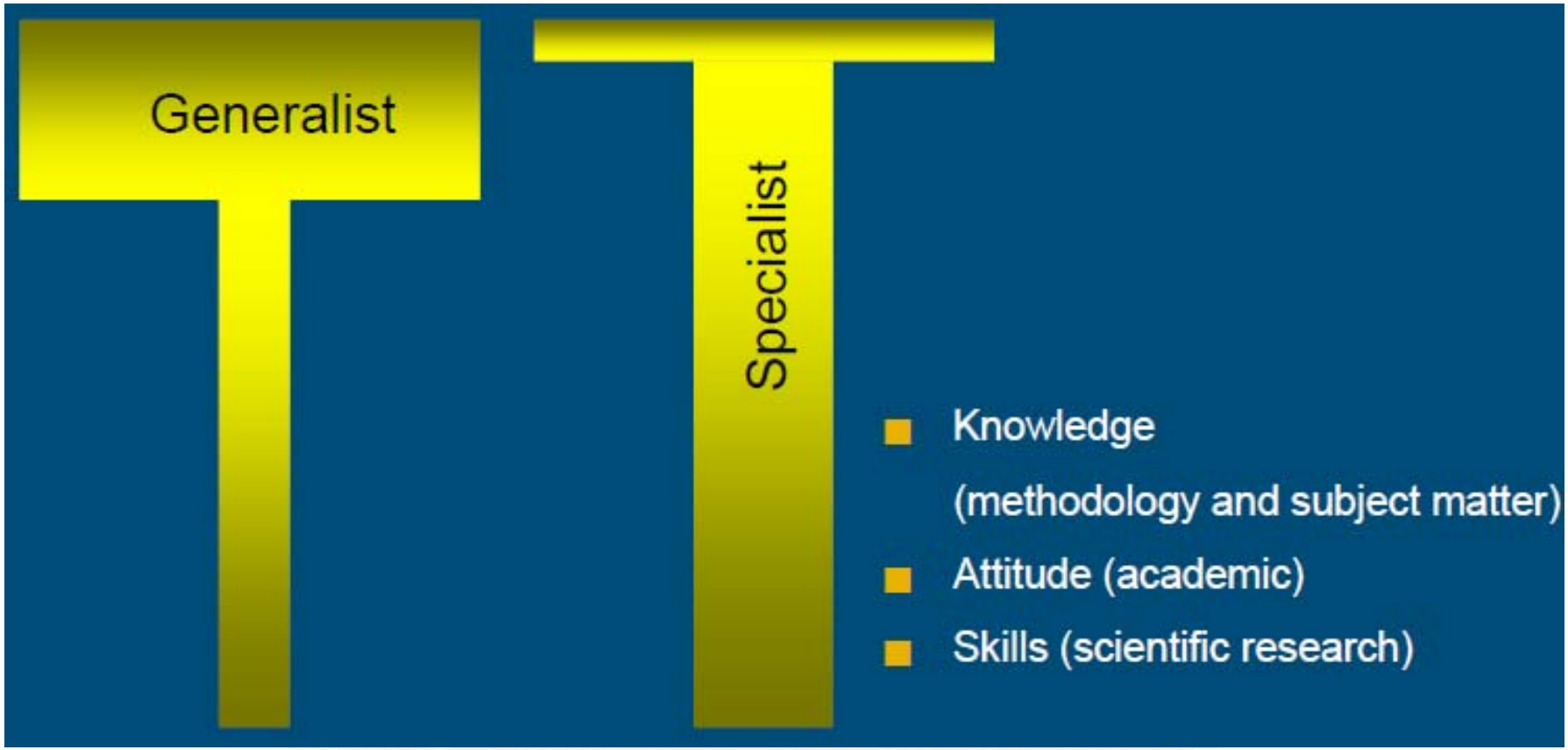
One-sided: Biological Approach



Inclusive: Biological and Social Approach



Training Relevance: Competencies



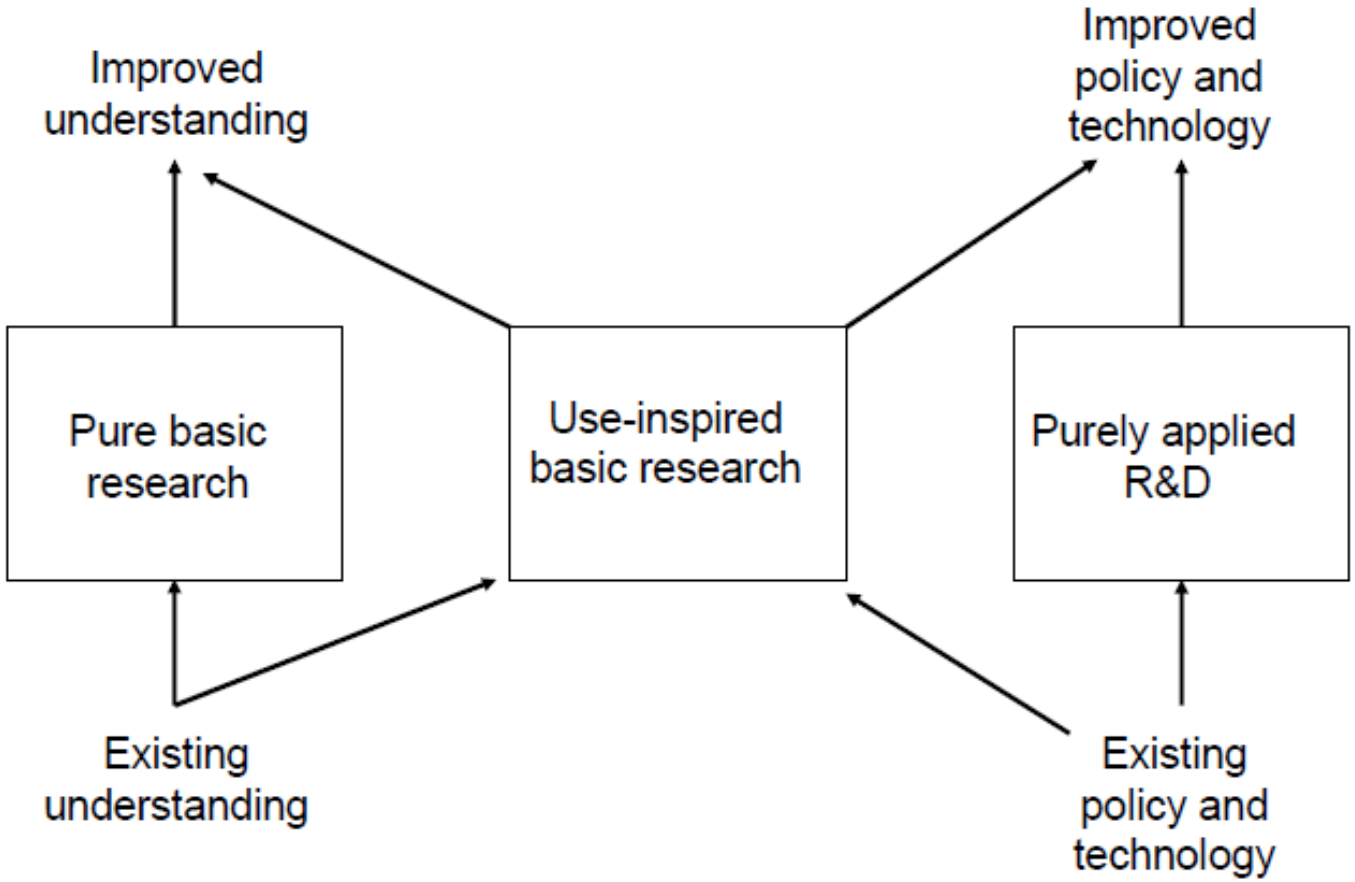
The Problem

- Growing (re)recognition that knowledge matters…
  - development "is built not merely through the accumulation of physical capital and human skill, but on a foundation of information, learning and adaptation”
- Science for development remains underinvested and unevenly distributed…
  - eg. How to manage mixed use landscapes sustainably
- It is seldom integrated into systems that support decision, action
  - eg. persistent mortality due to indoor air pollution from cooking stoves
- But there are exceptions, from which we can learn

Misconceptions:
(1) Basic research vs problem solving

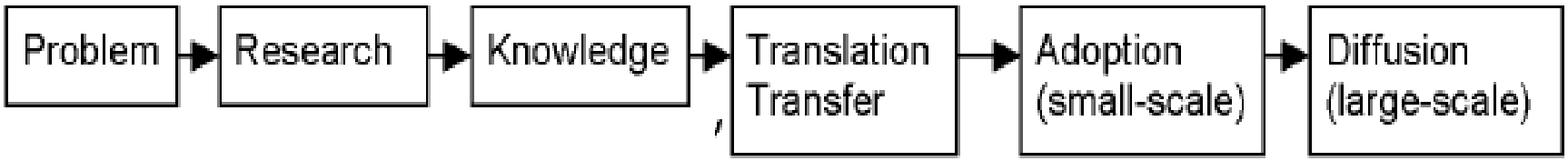
- Science based programmes continue to act as though basic research (*aka* “advanced science”) produces general knowledge that can then be “piped” or “extended” into solutions in specific field contexts…
  - But evidence shows that such “panaceas” fail (much) more often than they succeed
  - Need for a more accurate model of the relationship between basic research and problem solving…

Knowledge System for Linking Research with Action



2) Fragmentation (system is less than sum of its parts)

- Diagnosis (Why is there a problem?)
  - Different “partners” charged with different parts of the knowledge-action chain…



  - But sustainability often a public good, with weak incentives to complete the chain from basic research to final solutions
- Ask a university to invent the automobile?

3) Inflexibility (static systems, dynamic challenges)

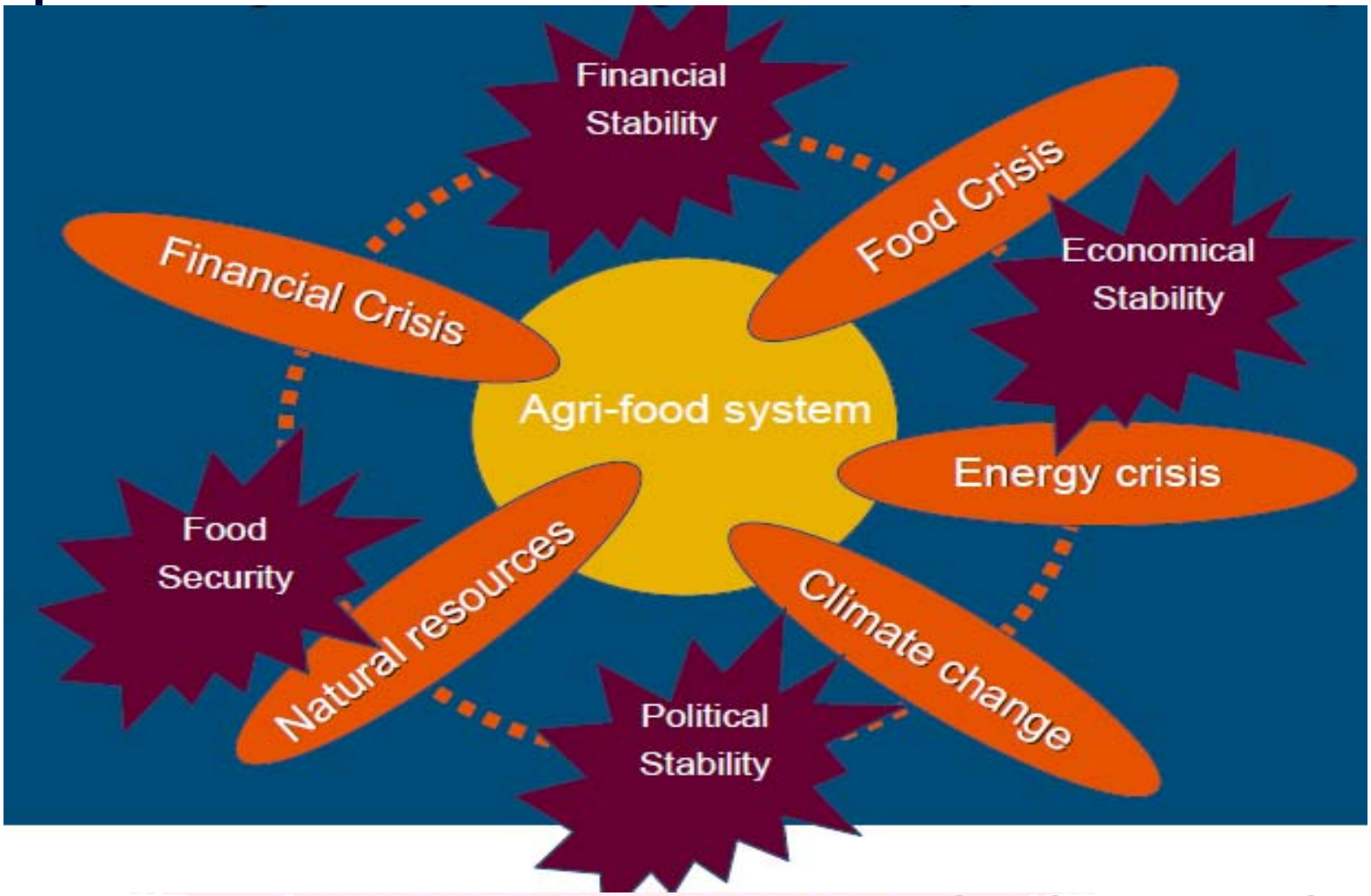
- Diagnosis (Why is there a problem?)
  - Absence of forums to learn from others' experience
  - Incentives to hide failures rather than learn from them
  - Willful ignorance and motives to block learning
- Process prescription (What needs to change?)
  - From knowledge systems to *learning systems*
- Institutional implementation (How to do it?)
  - *Adaptive management institutions, with capacity for* creating "safe spaces" needed for true experimentation…
- Learning from failure…

4) Denial of the linkage between knowledge and power

- Most science can be pursued with little thought for its relationship to power
  - But when knowledge influences decisions or behavior, knowledge *is power…*
- The only question is *whose interests* science will serve…
  - Farmers? States? Business? Researchers? Donors?

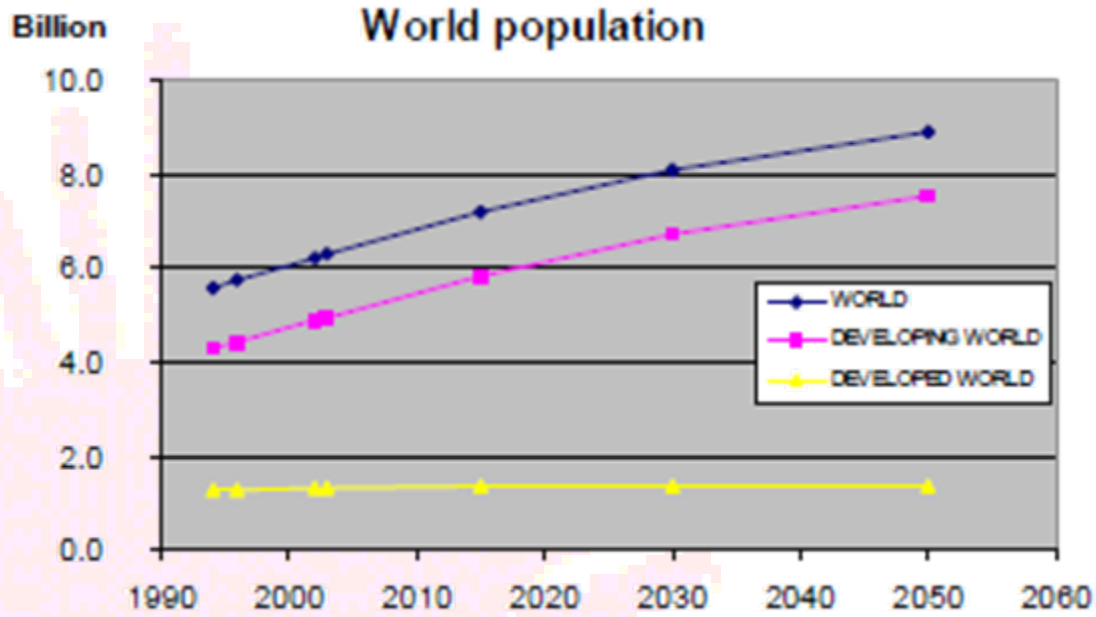
New Arrangements

Challenges to the Agri-food System



Long-term Challenges for the Agri-food System (2050)

- Robust food production x 2
- Eco-efficiency x 2
  - Less land, less water, less nutrients, less environmental impact
- Framework: Bio-based economy



Innovations Required

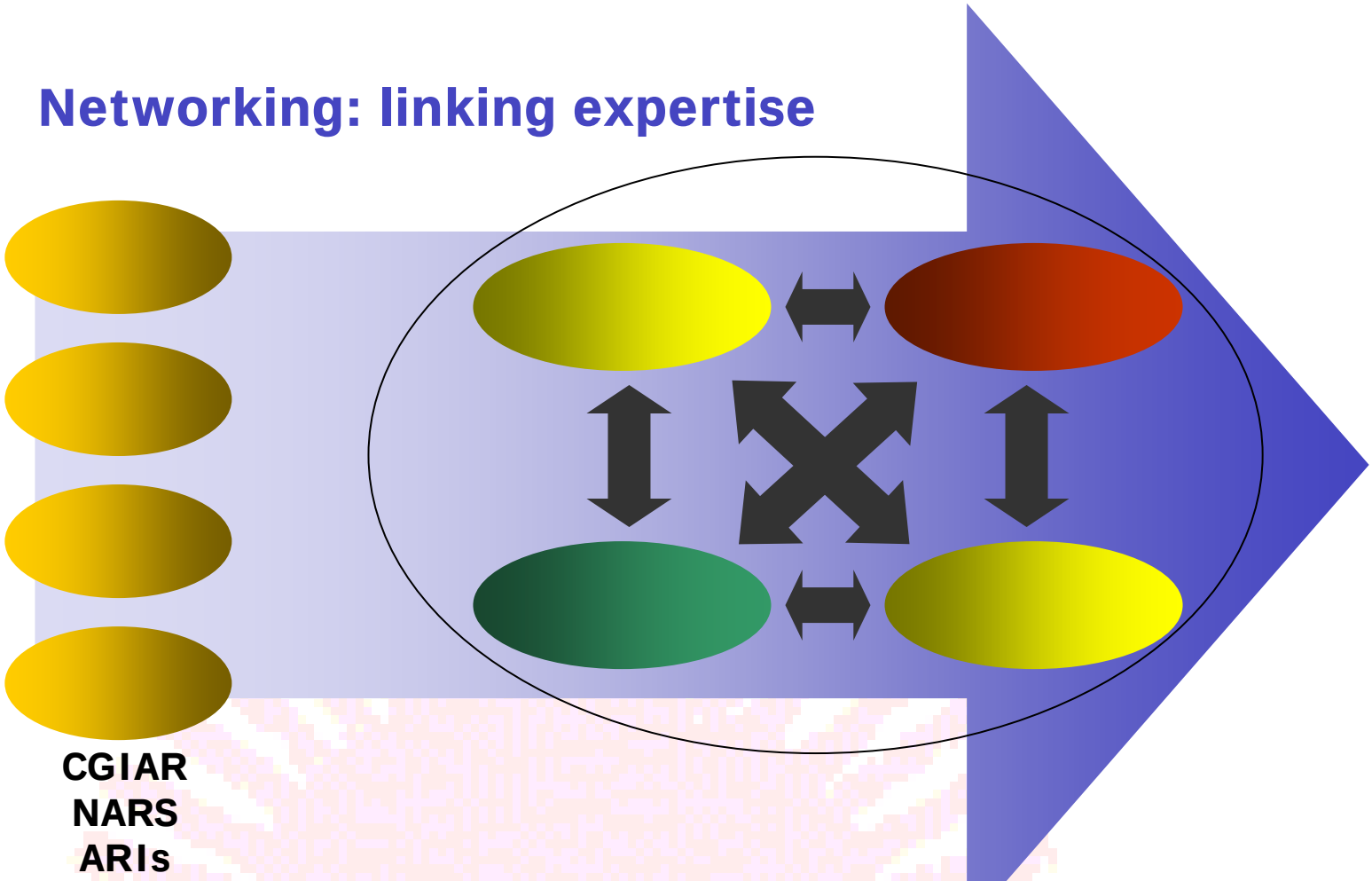
- New technologies
  - Production, value chains and the environment
- Institutions
  - Education, research and extension
- Governance
  - Policy for strategic direction change, incentives, and facilitation of institutional and technological innovation

Action Requirements

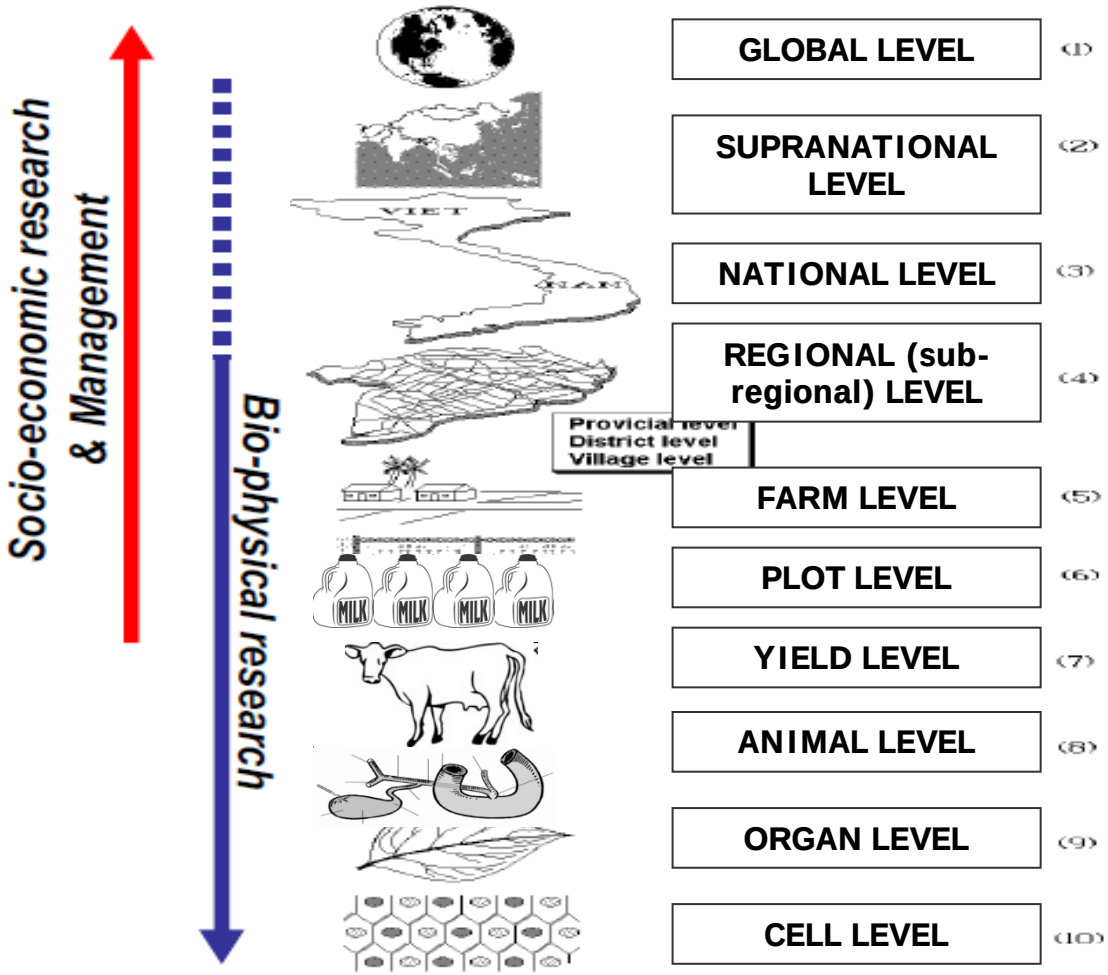
- Networking
- Scaling and governance
- “New” generation research organisations

Networking

Networking: linking expertise

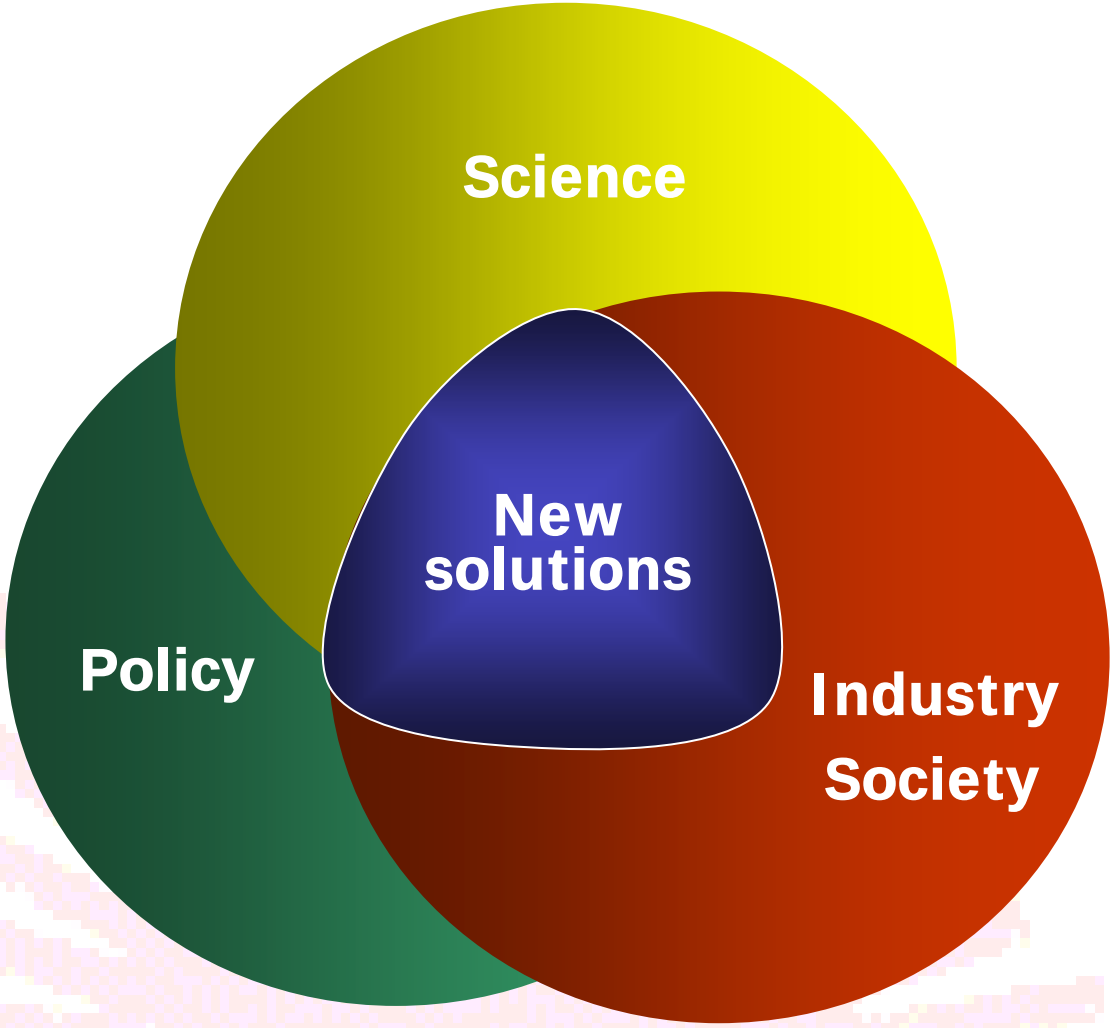


Scaling and Governance

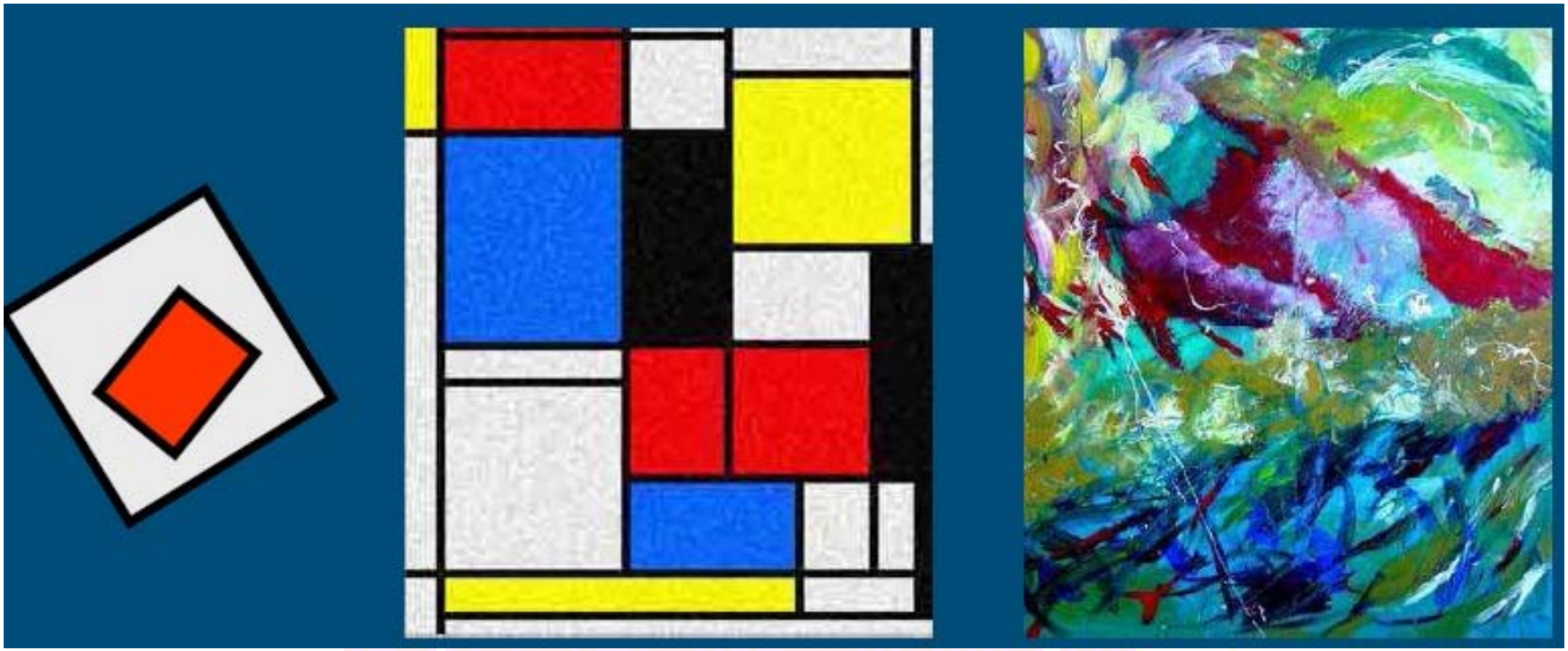


Interventions and issues at different levels

“New” Generation Research Organisations



Interdisciplinarity for Impact



Conclusions (1)

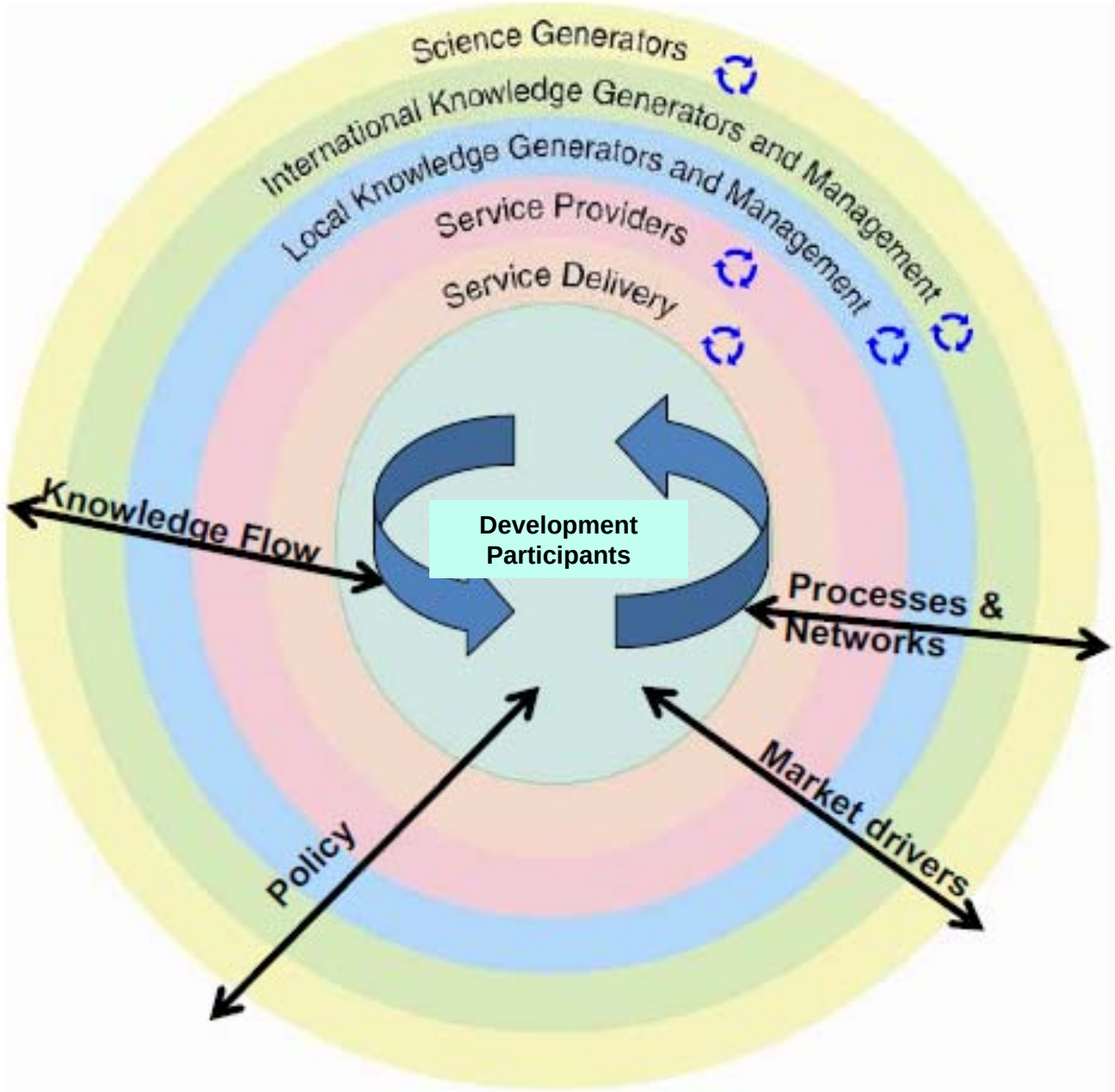
- New approaches required
- Key drivers/ champion is critical
- Concerted effort needed
  - Mega-project development: integrated, multi-disciplinary, multidimensional
  - *Strategic* partnerships
    - Closer ties with African universities
    - Also off-continent role players in Africa
  - Seed funding from partners
    - Co-funding mechanisms

Conclusions (2)

- Linking researchers within Africa
- Developing research networks
- Inter-institutional collaboration – creating communities of excellence
- Making collaboration work

Critical Questions

- What are the needs and priorities for agricultural research in delivering defined development impacts?
- What mechanisms and partnerships are required in innovation pathways turning research into development impacts at scale?
- What are the key blockages, barriers and bottlenecks that prevent research from benefiting the poor?
- How best should these be resolved and what enabling investments, policies and capacities are most needed?


Science Generators
International Knowledge Generators and Management
Local Knowledge Generators and Management
Service Providers
Service Delivery
Development Participants
Knowledge Flow
Processes & Networks
Policy
Market drivers

New Paradigm

To develop a new global agricultural research system that directly impacts the poor

- Agricultural research is driven by achieving sustainable development impacts
- Research outputs are accessible & relevant to the poor
- Clear roles & responsibilities, working collectively towards shared objectives
- Processes require subsidiarity, partnership & inclusiveness
- Scientific knowledge impacts development policies and practices
- Research investment increased & aligned with development funding